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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS

AND INTERFERENCES

Paper No. 9

Application Number: 09/924,490

Filing Date: 9 August 2001

Appellant(s): Wollaston et al.

Mr. Stanley C. Spooner

For Appellants

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4 April 2003.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellants' statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellants' statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellants' brief includes a statement that claims 1, 13, 14, 18, 20, 37-39, 41, 43, 45, 50, 52, 54, 56, 57, 59, 66 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

Dawes, C.J., and Thomas, W.M. "Friction Stir Process Welds Aluminum Alloys." Welding Journal, vol. 75, no. 3 (1 March 1996), pp. 41-45.

3,023,860 ELLZEY 3-1962

5,460,317 THOMAS et al. 10-1995

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 13, 18, 38, 52 are rejected under 35 U.S.C. 102(b). This rejection is set forth in prior Office Action, Paper No. 5.

Claims 1, 13, 14, 18, 20, 37-39, 41, 43, 45, 50, 52, 54, 56, 57, 59, 66 are rejected under 35 U.S.C. 103(a). This rejection is set forth in prior Office Action, Paper No. 5.

*(11) **Response to Argument***

The Dawes et al. article describes the principle of operation of friction stir butt welding and notes on page 45 that the process "has been *proved* as a potential practical welding technique [emphasis added]" offering a number of advantages such as high-quality, low-cost welds. In short, the friction stir butt welding method comprises the steps of placing the edges of two components in abutting relationship, inserting a rotating mandrel or probe into the joint line, and maintaining rotation of the probe until friction causes the material contacting the probe to melt and form a plasticized region. Probe rotation causes the plasticized material from both components to be mixed together, and as the probe is moved along the joint line, the plasticized region behind it subsequently solidifies into a monolithic, robust joint. The process is said to obviate the need for elaborate, complex welding equipment. Moreover, Table 2 of the Dawes et al. article foresees the possibility of using the friction stir process with aerospace elements: airframes, attachment of skin alloys, and fuel tanks.

A reading of appellants' method as set forth in claim 1 reveals that it merely recites the steps of friction stir butt welding using two airframe components. The Dawes et al. article anticipates this method in reciting:

✈ An overview of friction stir butt welding

✈ The need for two edges to abut in the friction stir butt welding process

✈ The fact that friction stir butt welding could be employed with airframe components

Has appellants' process as revealed by the Dawes et al. article actually been done with aircraft components, i.e., reduced to practice? This would seem to be unimportant in view of the fact the Dawes et al. article anticipates their process: Friction stir welding (requiring two abutting edges) and

the applicability of joining airframe components together by the friction stir process. It is inherent the airframe components to be welded together would be placed in side-by-side, abutting relationship prior to welding as this is a required feature of--indeed defines--friction stir butt welding. 35 USC 102(b), moreover, simply requires the "invention [be] patented or described in a printed publication . . . more than one year prior to the date of application for patent in the United States." The statute is silent upon the need for actual reduction to practice or utility in a particular field. In short, appellants' broadly recited method (and resulting product) would appear to be described in the Dawes et al. article. Reliance on a concept--*utility*--notably lacking from the text of the statute would seem to be in error. Furthermore, appellants' statement on page 13 of the brief characterizing the Dawes et al. article as not containing "any teaching of friction stir butt welding or any teaching that such welding could have utility in creating appellants' claimed structural airframe components" is puzzling at best and confusing at worst since a major thrust of the Dawes et al. article is to recognize the useful application of friction stir welding to airframe and other transportation-related components.

As to dependent claim 18, as noted above, Table 2 of the Dawes et al. article makes reference to "attachment of special alloy skins" by friction stir butt welding. Perforce this would require bringing edges of two skins together during the welding process, thus anticipating appellants' identical process.

With regard to the 35 USC 103(a) rejection of appellants' claims, it is readily apparent that the Ellzey patent discloses a conventional welding process whereby two skin sections or components A, B are overlapped and welded together. Column 5, lines 19, 20, of Ellzey notes the precise type of welding process employed to bond the skins together is not critical and that the welds could be "of

different types." The suggestion on page 18 of appellants' brief that examiner interprets this statement as somehow anticipating friction stir butt welding is ludicrous and a transparent attempt to becloud an obvious fact: the Ellzey patent is not necessarily wedded to one particular type of welding technique. To wit, if a better technique comes along, use it. Therefore, one skilled in the art looking abroad at various other techniques and encountering the Thomas et al. reference with its friction stir butt welding process would find therein the following advantages, *inter alia*, of using this novel process (column 9, lines 36-49):

- ✈ It requires no preparation
- ✈ It produces a smooth finish
- ✈ It's simple to use
- ✈ It has good mechanical properties
- ✈ It requires low cost capital equipment

Five good reasons to abandon the outmoded overlapping-weld-process! In view of these reasons, it is felt by the examiner to be obvious to replace the overlapping welds of Ellzey with the friction-stirred welds of Thomas et al. Again, the inventor Ellzey opens the door to the possibility of using "different types" of welds, not the examiner's conjectured prescient imagination.

With regard to depend claims 14, 18, 20, 41, 43, 45, the wings of the Ellzey aircraft, which are welded assemblies of skin panels as shown in Figure 12 of the patent, of necessity are double curvature in form, with the radius of curvature varying transversely along the top surface of the wing and with the wing top surface having a first radius of curvature and the underside having a second, different radius of curvature.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Robert P. Swiatek

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Art Unit 3643

RPS: 703/308-2700
27 June 2003--cdox

Conferees
RPS
PP, JG, RPS